Virtual Campus Hub

Project overview

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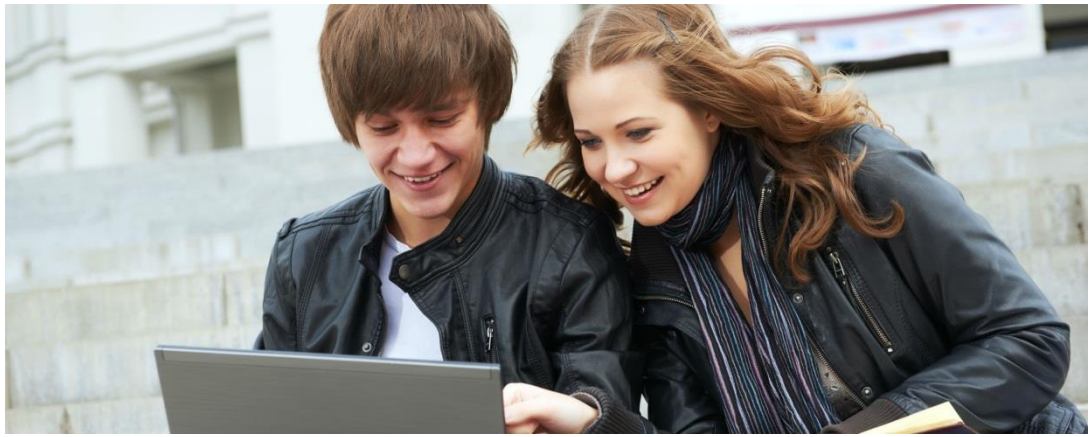
Project overview



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SEVENTH FRAMEWORK PROGRAMME

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Project objectives (Annex I)

The objective of the project is to deliver a working concept for a Virtual Campus Hub in a form ready to be implemented at partner universities, research organizations with links to industries, businesses and innovation parks.

The result will be published in a format that will allow other organizations to implement the Virtual Campus Hub concept.

Key components (Annex I)

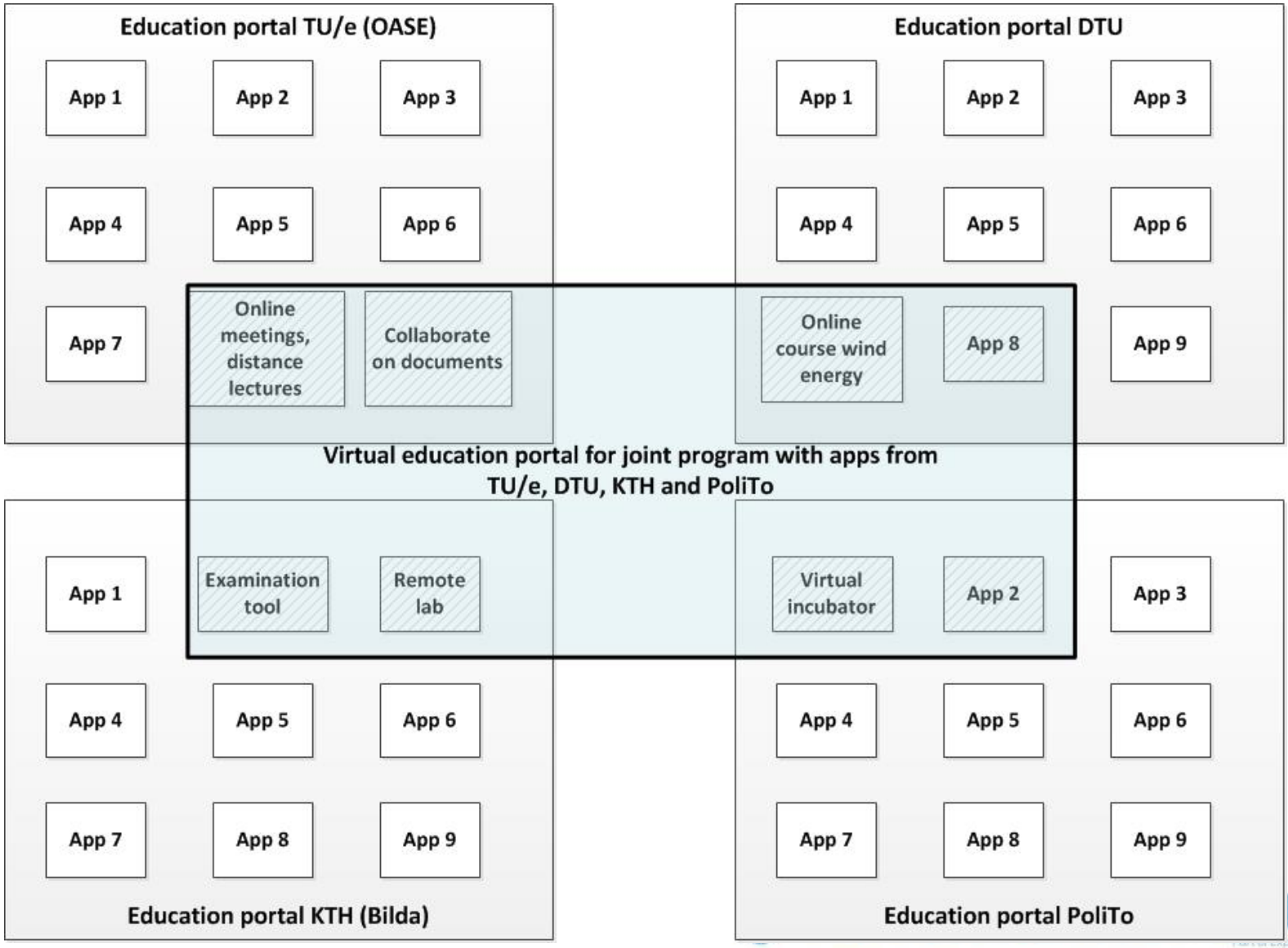
- **A technical platform** that can deliver virtual meeting spaces for lectures, conferences, laboratory and numerical exercises, as well as innovation tools, executive learning modules, self-study, etc.

- **A set of documented best practices** for the use of the platform for courses, teaching & learning methods, innovation processes, networking and joint programs, developed through continued complementary on-site activities.

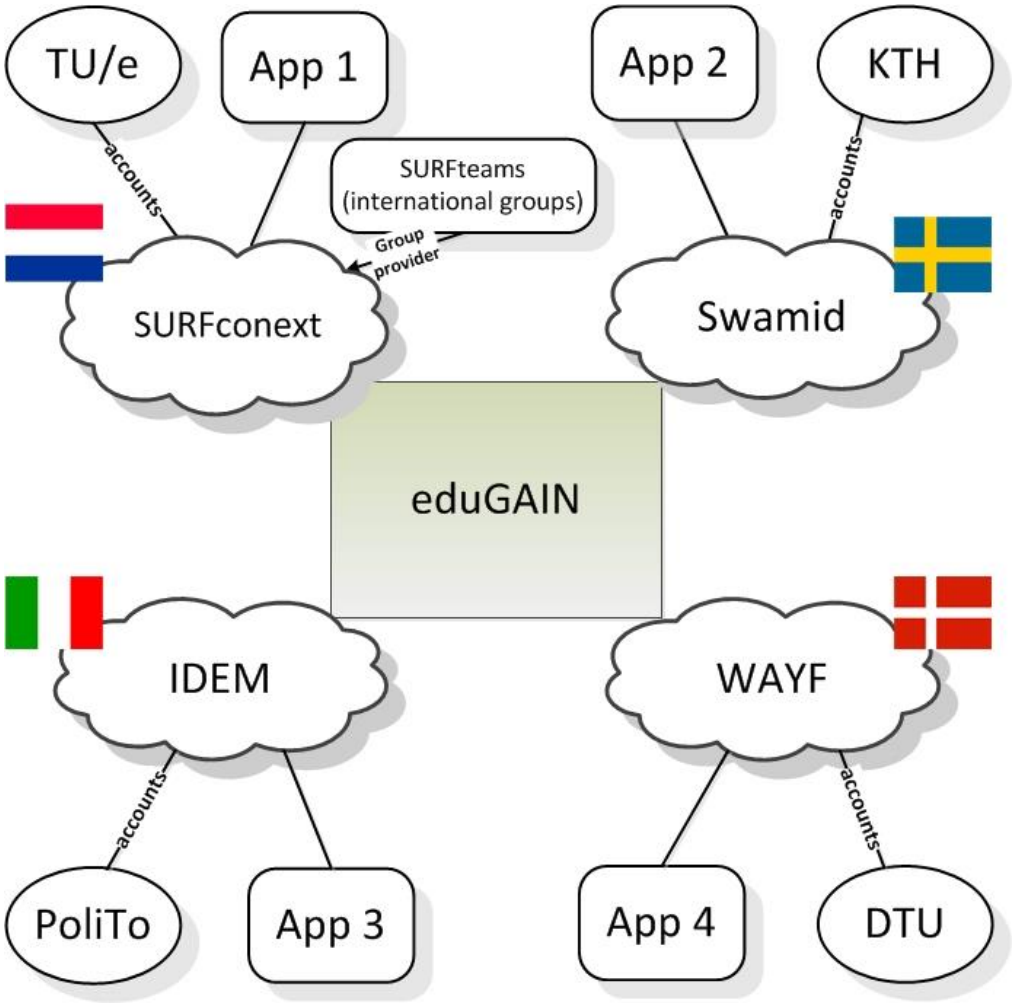
- **A growing inventory of staff competence and experience** gained from using the Virtual Campus Hub for enhancing quality and scaling-up innovation, education and training activities primarily related to sustainable energy, combined with dissemination and communication of the resulting best practices

http://www.virtualcampushub.eu/

Virtual Campus Hub concept



The infrastructure behind



its learning

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Virtual Campus Hub portal https://vch.tue.nl

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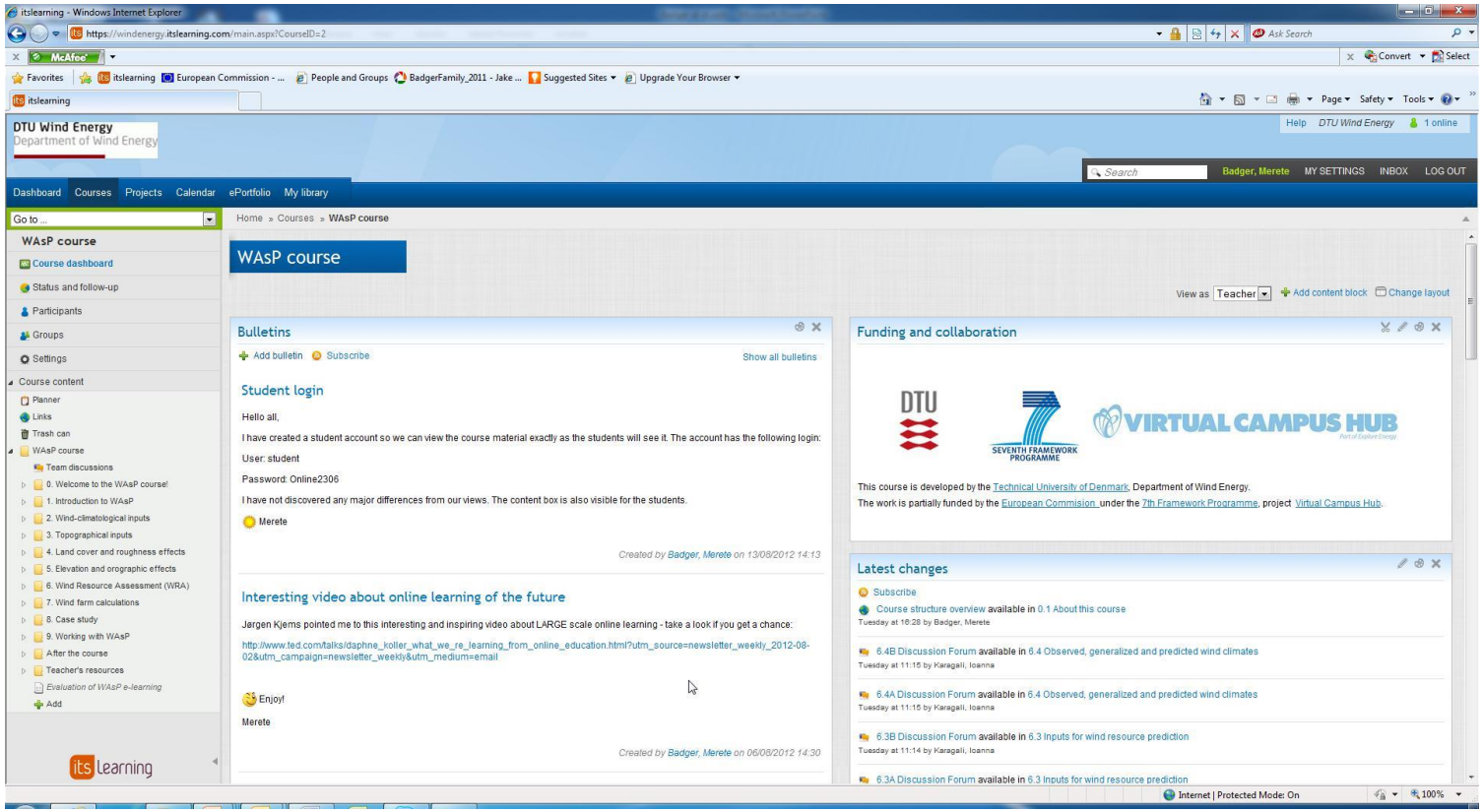
The project has delivered

- The **first demonstration** of international collaboration between universities **via eduGAIN**
- The **first connection of a cloud service** via eduGAIN
- Identification of **user requirements, best practises, and barriers** for using European E-infrastructure
- A boost in the use of **state-of-the-art E-learning tools and sharing of resources** for energy education at the partners
- Demonstrations of **new ways to integrate education, research, and innovation** in sustainable energy

Key facts and figures

- **1175 users** have tried the E-learning applications from Virtual Campus Hub (~500 unique users).
- **16 university courses** have made use of E-learning applications from the project.
- **25 university teachers** have been involved in online teaching and/or development of online teaching material.
- **60 members of staff** from enterprises have been involved as users of Virtual Campus Hub applications.
-
- **8 IdPs and 4 SPs** have been connected to the Virtual Campus Hub environment.

Access to learning materials: Post educational course on wind energy (DTU)



Course materials and interaction through LMS (itslearning as a cloud service provider)

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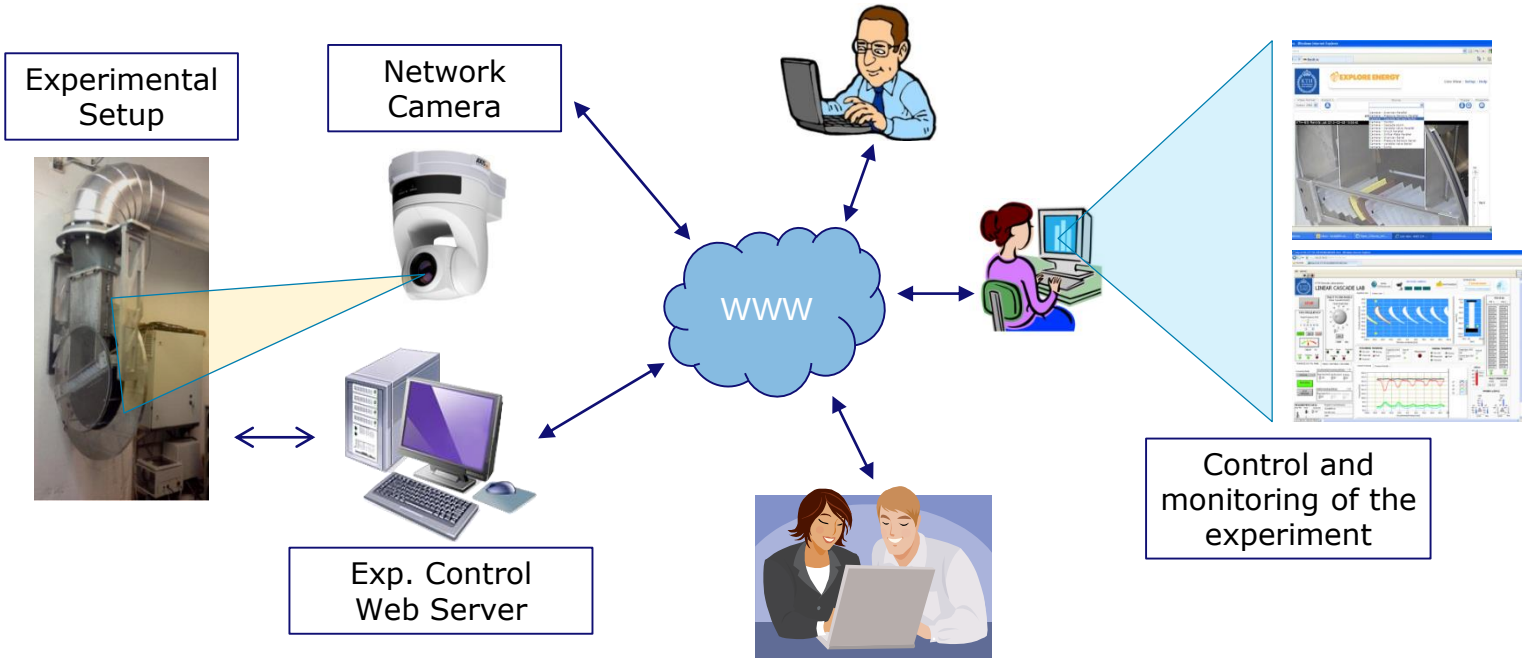
Access to learning materials: Remote laboratory (KTH)

The **remote laboratory** is operated and monitored on-distance for real-time experiments and collection of measurement data.



More info: http://www.energy.kth.se/proj/projects/Remote_labs/RL/RL_website/RCL/RCL.html

Collaboration environment (TU/e)

- **Share and collaborate on documents (Sharepoint)**
- **Efficient and reliable setup of online activities (unified communications, together with SURFnet)**

  (fully online or with online participation of some)
  - Remote lectures
  - Joint meetings and events
  - Supervision of student projects and consultation of experts

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Technological components

Federated authentication

- ✓ Use your own institution's account for applications elsewhere

Group management

- ✓ Using cross-institutional and cross border group definitions (virtual organizations) for authorization at different locations and in different applications
- ✓ In this project: SURFteams (part of SURFconext, based on Grouper from Internet2). Also available as open source (Openconext, http://www.openconext.org).
- ✓ No general standard across NRENs available yet.

Experiences

- FIM is promising technology and fairly well standardized across NRENs (except for group management)
- Enables institutions to join forces in education
- Knowledge and motivation at local institutions still very limited
- Crossing borders (inter-federation) is also new to NRENs
- Difficult to sell infrastructure improvements to users
- Not allowing industry on Géant infrastructure as IdP hampers collaboration with industry
- Involve federations and central IT departments from the start!
- UC hub technology in earlier stage of development than federated logon: few standards available (yet) and companies not very eager to connect to FIM infrastructure (yet?)

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Where should it go from here?

1. Towards institutions knowing about (cross border) FIM
2. Towards institutions wanting (cross border) FIM
3. Towards institutions preparing properly for (cross border) FIM projects
4. Towards (cross border) FIM as a utility service
5. Towards federations as knowledge brokers for institutions
6. Towards federations accepting reality

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Towards institutions knowing about (cross border) FIM

- People that decide on or initiate collaborations mostly don't know that FIM exists and could be useful. More marketing efforts by federations might help.

Towards institutions wanting (cross border) FIM

- For people to understand FIM's usefulness, you need a perspective for the future: what's next and where will it lead us? → (cross border) FIM as a growth path
- Beyond "federated logon only": group management, ID-mapping, presence, calendaring… → what functionalities are needed for which purposes and how do they fit the bigger picture?
- What functionalities are federations likely to pick up and what is left to others?

Towards institutions preparing properly for (cross border) FIM projects

- Involving all relevant stakeholders (both federations and internal stakeholders) from the start (i.e. while writing the proposal) would help a lot
- Analyze the architecture needed to open up the internally focused ICT infrastructure to the outside world (as R&E processes using it have done a long time ago)

Towards (cross border) FIM as a utility service

- Black box for institutions
- Better standardization / attuning of technology involved in inter-federation (e.g. group management)
- A general solution for guest accounts could be useful (via eduGAIN?)
- Coordination of (inter)federation work by federations themselves
- Federations as (technical and legal) brokers for (cross border) cloud services?

Towards federations as knowledge brokers for institutions

- Institutions have little knowlegde: they need to know who to ask (about technical and legal issues)
- Federations could assist institutions in working out the right architecture for (international) collaborations
- Federations could assist institutions in assessing the “FIM readiness” of applications that an institution has or considers buying

Towards federations accepting reality

- R&E collaboration with industry and others is there to stay. Treat it as such
- Thus: acceptance of industry IdPs, eID, social ID and perhaps other solutions?

OEUVRE Proposal - Partners

- **H2020 EINFRA-9 'Research Infrastructures'**
  Should run for 3 years, start Q3 2015

- **6 universities across Europe**
  (KTH, SE; DTU, DK, TUD, NL; Polito, IT; CENER, SP)

- **3 Technology Partners**
  (EUSTIx, CH; SURFnet, NL, ACOnet / UNI. Vienna, CH)

- **6 Industry Partners (1 per University)**

OEUVRE Proposal - GOALS

Create, enable and use Services

- Create and run AAI Infrastructure for VREs in renewable energy sector using existing services like OpenConext, and eduGAIN.
- Create services that are reusable by other sectors.
- Connecting generic collaboration services
- Specialized services like datasets and instrumentation
- Link with Stork2

Enhanced Privacy

- Special attention will be given to enhancing the infrastructure to provide better privacy for end-users

Sustainable

- Deliver businesscase for sustaining the infrastructure

Acknowledgements

Virtual Campus Hub is partially funded by the European Commission under the 7th Framework Programme

National federations are involved in Virtual Campus Hub

International e-Infrastrucure forms the backbone of the Virtual Campus Hub technology

Cloud service provider connected to Virtual Campus Hub

Technische Universiteit Eindhoven University of Technology